

Amendment under 37 CFR §1.111
Serial No. 10/629,806
Attorney Docket No. 030923

REMARKS

(1) Claims 1-9 and 12-23 are pending in this application, of which claims 1, 16, 17, 20 and 21 have been amended to incorporate the limitation, pure water. The amendment is supported at page 38, lines 8-12. No new claims have been added.

(2) The present invention is directed to a resist pattern thickening material which comprises a resin, a crosslinking agent, a nitrogen-containing compound and pure water. The resist pattern thickening material of the present invention is applied onto a resist pattern in the form of aqueous solution to thereby suitably thicken the resist pattern. In addition, as a result of having the above-mentioned structure, the present invention can efficiently, uniformly, and stably thicken the resist pattern so that the thickened resist pattern has reduced surface roughness regardless of the material and the size thereof, as described at page 41, line 4 to page 42, line 3.

(3) Claims 1-5, 9-15 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by Suetsugu et al. (U.S. Patent No. 6,329,119 B1).

Suetsugu et al. merely disclose a negative type resist composition. The composition disclosed by Suetsugu et al. cannot be used as the resist pattern thickening material of the present invention, because the composition disclosed by Suetsugu et al. is a resist composition including organic solvent, which is different from the present invention including pure water as a solvent.

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As stated by the Examiner, the polyvinyl phenol resin disclosed by Suetsugu et al. would be water-soluble in light of Tsukahara et al. However, the negative resist composition disclosed by Suetsugu et al., does not include pure water. As disclosed at col. 7, line 60 to col. 8, line 11, Suetsugu et al disclose to include organic solvents. In the Reference Examples of Suetsugu et al., the resins were prepared in the organic layer of the solvents, as disclosed at col. 8, lines 48-53; col. 8, lines 63-67; and col. 9, lines 14-22. In Examples of Suetsugu et al., propylene glycol monomethyl ether acetate was used (col. 9, line 45; col. 11, line 5 and line 50; col. 12, line 9 and 44; and col. 13, line 6).

Thus, even if Suetsugu et al. disclose water-soluble resin, Suetsugu et al. do not disclose the composition including pure water, and rather it teaches to use organic solvents. Thus, claims 1, 16, 17, 20 and 21, as amended, are not anticipated by Suetsugu et al.

(4) Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Suetsugu et al. (U.S. Patent No. 6,329,119 B1) in view of Shimada et al. (U.S. Patent No. 6,416,939 B1).

Neither of the references discloses the features of claims 6 and 7. In addition, claims 6 and 7 depend on claim 1. Reconsideration of the rejection is respectfully requested.

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(5) Claims 1-10, 12 and 14-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ishibashi et al. (U.S. Patent No. 6,579,657 B1) in view of Vasta. (U.S. Patent No. 6,416,939 B1).

As admitted by the Examiner, Ishibashi's second resist does not contain a nitrogen-containing compound. Comparing thickening materials A-E with thickening material F, the formers include the claimed nitrogen-containing compounds whereas the latter did not include the nitrogen-containing compound (Table 1 at page 38). As shown in Table 3 at page 41, space pattern could be formed in the thickening materials A-E, but could not be formed in the thickening material F. Presence of a property not possessed by the prior art is evidence of nonobviousness. Thus, the claimed invention, showing unexpected results, is not obvious over Ishibashi et al. in view of Vasta.

(6) Claims 1-12 and 14-21 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 7, 8, 11, 15-20, 24-29, 31 and 34 of copending Application No. 10/909,888.

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Also, claims 1-21 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5, 6, 8, 9, 13-15, 19-24, 26 and 27 of copending Application No. 10/623,679.

Also, claims 1-17 and 19-21 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 10-19 of copending Application No. 10/647,247.

Claims 1, 16, 17, 20 and 21 have been amended in this Response. Applicants request the Examiner to reconsider the rejection, because claims 1-12 and 14-21, as amended, are not obvious over claims 1-4, 7, 8, 11, 15-20, 24-29, 31 and 34 of copending Application No. 10/909,888

(4) In view of the above, claims 1-9 and 12-23, as herein amended, are in condition for allowance. Applicants request such action at an early date.

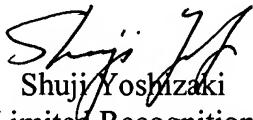
If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866

Respectfully submitted,

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SY/mt

Attachment: Petition for Extension of Time
Limited Recognition

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